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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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John T. McDevitt

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FULBRIGHT & JAWORSKI LLP
600 CONGRESS AVENUE
SUITE 2400
AUSTIN, TX 78701

EXAMINER

FORMAN, BETTY J

ART UNIT

PAPER NUMBER

1634

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/775,343

Applicant(s)

MCDEVITT ET AL.

Examiner

BJ Forman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final:
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 309,311-321,323,324 and 326-341 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 309,311-321,323,324 and 326-341 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 30 June 2006 has been entered.

Status of the Claims

2. This action is in response to papers filed 30 June 2006 in which claim 309 was amended. The amendments have been thoroughly reviewed and entered.

The previous rejections in the Office Action dated 30 December 2005 are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed but are deemed moot in view of the amendments, withdrawn rejections and new grounds for rejection. New grounds for rejection are discussed.

Claims 309, 311-321, 323-324, 325-341 are under prosecution.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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4. Claims 309, 311-321, 323-324, 325-341 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 309 (from which all other claims depend) has been amended to define the support as having cavities fabricated "according to predetermined spacing to form an ordered array". Applicant points to pages, 7, 22 and 75 to provide a supporting teaching of the newly claimed supporting member. While the cited passages teach an "ordered array" of cavities, neither the cited passages or remaining text provide a teaching of the "predetermined spacing". Therefore, the newly claimed support is not described in the specification in such a way as to convey one skilled in the art that the inventor, at the time the application was made, had possession of the newly support.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 309, 311-315, 317-319, 323-324, 326-335, 337-339 and 341 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lavigne et al (J. Amer. Chem. Soc. 1998, 120: 6429-6430) and Grow (U.S. Patent No. 5,866,430, issued 2 February 1999).

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Regarding Claim 309, Lavigne et al teach a multi-component system (electronic tongue device, Fig. 1C) comprising a light source, a support comprising particles and a detector positioned so that light passes from the light source to the particles and onto the detector. Lavigne et al further teach the support having a plurality of cavities formed according to predetermined spacing in an ordered array (addressable positions, page 6429, right column, lines 1-10). Lavigne et al further teach and illustrate that the support is "interfaced" with the light source, detector and computer (page 6429 and Fig. 1C) but they do not specifically teach that the system comprises "a body" having the light source, detector and removable support.

However, systems having light source, detector and removable support integrated into a body were well known in the art at the time the claimed invention was made as taught by Grow who teaches that the integrated system with removable support permits sampling at locations remote from the analysis lab (Column 40, lines 30-67).

Grow discloses a system comprising a body, a light source disposed within the body, a cartridge (#55), wherein the cartridge is removable and positionable within the body (Column 38, line 64-Column 39, line 15), wherein the cartridge comprises a body (#56) and a sensor array (tape, filter or support Column 39, lines 1-61, Fig. 3) wherein the array comprises a supporting member and at least one cavity (interior space of the cassette as illustrated in Fig. 3) within the supporting member, a polymeric bead particle positioned in the cavity and having a receptor bound thereto (i.e. receptor bioconcentrator, Column 19, lines 54-64 wherein the bioconcentrator is immobilized on a support e.g. bead, Column 21, lines 10-28), and a detector disposed within the body configured to detect a single from analyte interaction such that the light source and the detector are positioned such that light passes from the light source to the particle and onto the detector (Fig. 1 and Column 36, line 54-Column 37, line 67).

Grow teaches the system wherein receptor/bioconcentrator forms an array on the support, but they do not specifically teach the support is configured to have a plurality of cavities in an ordered array of predetermined spacings. However, ordered arrays were well

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known in the art at the time the claimed invention was made as taught by Lavigne et al who teaches that the ordered array provides individually addressable particles whereby a variety of analytes are simultaneously identified (page 6429, right column, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the ordered array of Lavigne et al to the immobilized particles of Grow. One of ordinary skill in the art would have been motivated to do so for the expected benefit of providing identification of a variety of individual analytes simultaneously as taught by Lavigne et al (page 6429, right column, lines 1-10).

Alternatively, It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the integrating housing and removable support of Grow to the system of Lavigne et al. One of ordinary skill in the art would have been motivated to do so for the expected benefit of sampling locations remote from the analysis lab as desired in the art (Grow, Column 40, lines 30-67).

Regarding Claim 311, Grow discloses the system further comprising a sample input port positioned on the body and coupled to the sensor i.e. inlet side (Column 39, lines 1-15).

Regarding Claim 313, Grow discloses the system further comprising a sample input port and filter positioned on the body and coupled to the sensor (Column 39, lines 1-15).

Regarding Claim 314, Grow discloses the system further comprising a fluid cartridge coupled to the body and array i.e. liquid pump #25 (Column 37, lines 20-27).

Regarding Claim 315, Grow discloses the system further comprising an electronic controller disposed in the body and coupled to the sensor, light source and detector (Column 37, lines 1-14)

Regarding Claim 317, Grow discloses the system further comprising a data transfer system e.g. computer (Column 37, lines 1-14).

Regarding Claim 318 Grow discloses the system wherein the detector comprises a monochrome detector (Column 2, lines 40-45).

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Regarding Claim 319 Grow discloses the system wherein the detector comprises a color detector (Column 55, lines 5-28).

Regarding Claim 323, Grow discloses the system comprising a fluid delivery system e.g. pump (Column 37, lines 20-25).

Regarding Claim 324, Lavigne et al disclose the system wherein the detector comprises a CCD (Fig. 1C).

Regarding Claim 326, Grow discloses the system comprising a plurality of particles that are detected simultaneously (Column 21, lines 29-51) and Lavigne et al disclose the system wherein the plurality of particles are positioned within the cavities and the system is configured for simultaneous detection of a plurality of analytes (Fig. 1-2 and page 6429, right column, lines 1-10).

Regarding Claim 327, Lavigne et al disclose the system wherein the particles are between 0.05 and 100microns (page 6429, right column through page 6430 and Fig. 1-2).

Regarding Claims 328-329, Lavigne et al disclose the system wherein the particles change color when contacted with fluid based on first and second indicators (page 6429, right column through page 6430 and Fig. 1-2).

Regarding Claim 330, Grow discloses the system wherein the particles are associated with a signal displaced and detected upon analyte binding i.e. scattering spectral bands (Abstract).

Regarding Claim 331, Lavigne et al disclose the system wherein the support is silicon (page 6429, right column, lines 1-3).

Regarding Claim 332, Grow discloses the system further comprising channels for flowing fluid into and away from the cavity (Column 60, lines 29-47).

Regarding Claim 333, Grow discloses the system wherein the supporting member further comprises a barrier layer over the cavity to inhibit dislodgement of the particle (i.e. cassette cover and sample window, Column 39, lines 1-15 and Fig. 3).

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Regarding Claim 334, Grow discloses the wherein the supporting member further comprises a barrier layer over the cavity to inhibit dislodgement of the particle (i.e. cassette cover and sample window, Column 39, lines 1-15 and Fig. 3) and a channel is formed for fluid flow between the barrier and support (Column 60, lines 29-47).

Regarding Claim 335, Grow discloses the supporting member comprises plastic (Column 21, lines 20-28).

Regarding Claim 337, Grow discloses the system wherein the cavity is configured such that fluid passes through the cavity (Column 60, lines 29-47, Fig. 1).

Regarding Claim 338, Grow discloses the system further comprising a pump coupled to the supporting member (Column 37, lines 20-25).

Regarding Claim 339, Grow discloses the system wherein a channel is formed in the supporting member coupled to a pump (Column 60, lines 29-47, Fig. 1).

Regarding Claim 341, Grow discloses the system wherein the array is positioned within a removable cartridge (Column 38, line 64-Column 39, line 15 and Fig. 3).

7. Claim 312 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lavigne et al (J. Amer. Chem. Soc. 1998, 120: 6429-6430) and Grow (U.S. Patent No. 5,866,430, issued 2 February 1999) as applied to Claim 301 above and further in view of Wilding et al (U.S. Patent No. 5,587,128, issued 24 December 1996).

Regarding Claim 312, Lavigne and Grow teach the system of Claim 309 as discussed above. Grow further teaches a sample input port positioned on the body and coupled to the sensor i.e. inlet side (Column 39, lines 1-15) but does not teach the port for receiving a syringe.

Wilding et al teach a similar apparatus comprising a fluid delivery system wherein the system comprises an inlet port configured to receive a syringe wherein the syringe permits

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reagent delivery while minimizing evaporation of assay components (Column 18, lines 21-30). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the inlet port configuration of Wilding et al to the fluid delivery of Grow for the expected benefits of providing for reagent delivery while minimizing evaporation of assay components as taught by Wilding et al (Column 18, lines 21-30 and Column 22, lines 57-64).

8. Claim 316 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lavigne et al (J. Amer. Chem. Soc. 1998, 120: 6429-6430) and Grow (U.S. Patent No. 5,866,430, issued 2 February 1999) as applied to Claim 301 above and further in view of Shaffer (U.S. Patent No. 6,411,207, filed 1 October 1999).

Regarding Claim 319, Lavigne and Grow teach the system of Claim 309 as discussed above. Grow further teaches a sample is used for testing air and gases out in the field (Column 40, lines 31-40), but does not teach a global positioning system coupled to the housing. However, sensors for environmental detection were well known in the art to also contain global positioning systems as taught by Shaffer. Shaffer teaches a field sensor for detecting physical threats (e.g. noxious gas and/or changing air pressure, Column 3, line 63-Column 4, line 34) wherein the device includes a global positioning system for networking in the field to alter others of possible threats (Column 5, lines 19-31). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the global positioning system of Shaffer to the field tester of Grow. One of ordinary skill in the art would have been motivated to do so for the expected benefit of networking in the field for altering others of possible dangers as taught by Shaffer (Column 5, lines 19-31).

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9. Claims 320, 321 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lavigne et al (J. Amer. Chem. Soc. 1998, 120: 6429-6430) and Grow (U.S. Patent No. 5,866,430, issued 2 February 1999) as applied to Claim 301 above.

Regarding Claims 320-321, Grow discloses the system comprising a cartridge having a support wherein the sample is "drawn through" the cartridge using a liquid pump (#25) (Column 37, lines 20-24). While Grow does not define the pump as a vacuum, the fact that the pump functions to draw the sample into the cartridge, clearly suggests that the pump functions as a vacuum. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to utilize a vacuum as a pump in the device of Grow based on the desire to draw the sample into and through the device.

10. Claim 336 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lavigne et al (J. Amer. Chem. Soc. 1998, 120: 6429-6430) and Grow (U.S. Patent No. 5,866,430, issued 2 February 1999) as applied to Claim 301 above and further in view of Drexler (U.S. Patent No. 4,588,665, issued 13 May 1986).

Regarding Claim 336, Grow discloses the system comprising a cartridge comprising a support disposed within a body wherein the support comprises a bar code for identification of biomolecule on the support (Column 39, lines 62-67). Grow does not specifically teach bar code composition. However, it was well known at the time the claimed invention was made that bar codes are recorded of photoresist material as taught by Drexler (Column 1, lines 40-49). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the photoresist of Drexler to the support of Grow. One of

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ordinary skill in the art would have been motivated to do so based on the well-know material and method for mass data storage as taught by Drexler (Column 1, lines 40-49).

11. Claim 340 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lavigne et al (J. Amer. Chem. Soc. 1998, 120: 6429-6430) and Grow (U.S. Patent No. 5,866,430, issued 2 February 1999) as applied to Claim 301 above and further in view of Wang et al (U.S. Patent No. 5,804,451, issued 8 September 1998).

Regarding Claim 340, Grow discloses the system comprising a light source disposed within a body. Grow does not specifically teach the light source comprises a light emitting diode. However, Grow does teach that any light source suitable for generating Raman spectral information is usable within their device (Column 21, lines 52-56). Wang et al teach the light diodes are preferred light source for Raman detection because they can be employed with reduced cost and size (Column 6, lines 14-26). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the diode light source of Wang et al to the device of Grow. One of ordinary skill in the art would have been motivated to do so based on the suggestion of Grow (Column 21, lines 52-56) and further based on their reduced cost and size as desired in the art as taught by Wang et al (Column 6, lines 14-26).

Conclusion

12. No claim is allowed.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

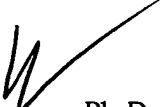
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.



BJ Forman, Ph.D.
Primary Examiner
Art Unit: 1634
August 25, 2006